

WHAT IS CLAIMED IS:

1. A suspension apparatus of a multi-axle vehicle having at least three tire axles, comprising:

- 5 i) a front link of which upper end portion is connected to a vehicle body with a pin, and of which lower end portion is in a vicinity of a front axle, ii) a rear link of which upper end portion is connected to said vehicle body with a pin, and of which lower end portion is in a vicinity of a rear axle, and iii) a
- 10 connecting link for longitudinally connecting portions in vicinities of the respective lower end portions of said front link and said rear link, which are placed in vicinities of at least a pair of said front axle and said rear axle, with an optional adjacent front axle and rear axle being paired; and
- 15 at least one quadric link structure formed by said vehicle body, said front link, said rear link and said connecting link,

wherein said front axle is mounted to a vicinity of a front joint at a lower side of at least said one quadric link structure and said rear axle is mounted to a vicinity of a rear joint at the lower side of at least said one quadric link structure; and

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wherein in at least said one quadric link structure, a side length at a side of said connecting link is shorter than a side

25 length at a side of said vehicle body.

2. A suspension apparatus of a multi-axle vehicle having at least four tire axles, comprising:

i) a front link of which upper end portion is connected to a vehicle body with a pin, and of which lower end portion is in a vicinity of a front axle, ii) a rear link of which upper end portion is connected to said vehicle body with a pin, and of which lower end portion is in a vicinity of a rear axle, and iii) a connecting link for longitudinally connecting portions in vicinities of the respective lower end portions of said front link and said rear link, which are placed in vicinities of at least a pair of said front axle and said rear axle including a pair at a forefront, with a first and a second axels from a front of the vehicle being made the pair at the forefront, and at least one pair being formed with an optional adjacent front axel and rear axle at a rear side from a third axle from the front of said vehicle being paired; and

at least one quadric link structure formed by said vehicle body, said front link, said rear link and said connecting link,

wherein said front axle is mounted to a vicinity of a front joint at a lower side of at least said one quadric link structure and said rear axle is mounted to a vicinity of a rear joint at the lower side of at least said one quadric link structure; and

wherein in at least said one quadric link structure, a side length at a side of said connecting link is shorter than a side length at a side of said vehicle body.

5 3. A suspension apparatus of a multi-axle vehicle having at least four tire axles, comprising:

i) a front link of which upper end portion is connected to a vehicle body with a pin, and of which lower end portion is in a vicinity of a front axle, ii) a rear link of which upper end
10 portion is connected to said vehicle body with a pin, and of which lower end portion is in a vicinity of a rear axle, and iii) a connecting link for longitudinally connecting portions in vicinities of the respective lower end portions of said front link and said rear link, which are placed in vicinities of at least a
15 pair of said front axle and said rear axle including a pair at a rear end, with a second and a first axels from a rear of the vehicle being made the pair at the rear end, and at least one pair being formed with an optional adjacent front axel and rear axle at a front side including a third axle from the rear of said
20 vehicle being paired; and

at least one quadric link structure formed by said vehicle body, said front link, said rear link and said connecting link,

wherein said front axle is mounted to a vicinity of a
25 front joint at a lower side of at least said one quadric link

structure and said rear axle is mounted to a vicinity of a rear joint at the lower side of at least said one quadric link structure; and

wherein in at least said one quadric link structure, a side length at a side of said connecting link is shorter than a side length at a side of said vehicle body.

4. A suspension apparatus of a multi-axle vehicle having at least four tire axles, comprising:

10 i) front links of which upper end portions are connected to a vehicle body with pins, and of which lower end portions are in vicinities of respective front axles, ii) rear links of which upper end portions are connected to said vehicle body with pins, and of which lower end portions are in vicinities of respective rear axles, and iii) connecting links for longitudinally
15 connecting portions in vicinities of the respective lower end portions of said front links and said rear links, which are placed in vicinities of said respective front axles and said respective rear axles of at least two pairs of said axles including a pair at a forefront and a pair at a rear end, with a first and a second axels
20 from a front of the vehicle being made the pair at the forefront, and a second and a first axles from a rear of said vehicle being made the pair at the rear end; and

quadric link structures formed by said vehicle body, said
25 respective front links, said respective rear links and said

respective connecting links ,

wherein said respective front axles are mounted to vicinities of front joints at lower sides of said respective quadric link structures and said respective rear axles are
5 mounted to vicinities of rear joints at the lower sides of said respective quadric link structures; and

wherein in said respective quadric link structures, respective side lengths at sides of said connecting links are shorter than respective side lengths at sides of said vehicle
10 body.

5. The suspension apparatus of the multi-axle vehicle according to Claim 4,

wherein a number of said tire axles is at least six; and
15 wherein at least one pair with an optional adjacent front axle and rear axle being paired is formed in a middle portion of said pair at the forefront and said pair at the rear end.

6. The suspension apparatus of the multi-axle vehicle
20 according to any one of Claims 1 to 5,

wherein at least one of said connecting links is adjustable in length.

7. The suspension apparatus of the multi-axle vehicle
25 according to any one of Claims 1 to 5,

wherein at least one of said connecting links comprises a suspension link extending and contracting in length in accordance with a load.

- 5 8. The suspension apparatus of the multi-axle vehicle according to any one of Claims 1 to 5,

 wherein a hydraulic cylinder or a suspension cylinder for controlling an attitude of said quadric link structure is placed in at least one spot between said vehicle body and said
10 front link and between said vehicle body and said rear link.

9. The suspension apparatus of the multi-axle vehicle according to Claim 6,

 wherein a hydraulic cylinder or a suspension cylinder
15 for controlling an attitude of said quadric link structure is placed in at least one spot between said vehicle body and said front link and between said vehicle body and said rear link.

10. The suspension apparatus of the multi-axle vehicle
20 according to Claim 7,

 wherein a hydraulic cylinder or a suspension cylinder for controlling an attitude of said quadric link structure is placed in at least one spot between said vehicle body and said front link and between said vehicle body and said rear link.

11. The suspension apparatus of the multi-axle vehicle according to any one of Claims 1 to 5, further comprising:

a suspension cylinder which is placed in at least one spot between said vehicle body and said front link, and controls
5 rotation of said front link; and

a suspension cylinder which is placed in at least one spot between said vehicle body and said rear link, and controls rotation of said rear link,

wherein a locked or controlled state, and a freely opened
10 state are selectable for length of said connecting link.

12. The suspension apparatus of the multi-axle vehicle according to any one of Claims 1 to 5, further comprising:

a crawler belt or a chain which is mounted by being
15 wound around respective tired wheels of at least one pair of said front axle and said rear axle which are paired.